

REMARKS/ARGUMENTS

Reconsideration of this application is respectfully requested in view of the foregoing amendments and discussion presented herein.

1. **Rejection of Claims 1-2, 4-6, 10-12 and 18-19 under 35 U.S.C. §102(b).**

Claims 1-2, 4-6, 10-12 and 18-19 have been rejected under 35 U.S.C. §102(b) based on the mattress layer disclosed by Shek (U.S. Pat. No. 5,105,490).

After considering the grounds for rejection the Applicant responds as follows.

There are a number of aspects of the relied-upon reference which do not comport to elements recited in Applicant's claims. These differences are not surprising in that the Shek reference is non-analogous art having different objects and operating according to different operating principles.

Shek describes a massage apparatus adapted as a mattress (col. 1, lines 7-8). The object of the Shek reference is to provide a more comfortable mattress. Shek describes the problems with current mattresses whether soft or hard, which he states do not provide proper support. Shek goes on to describe the object of his invention in column 1, lines 24-26: *"Accordingly, the ideal condition of a pad or mattress is soft to the touch but firm enough to uniformly distribute the user's weight."*

Before going into detail about the differences between Shek and the instant application, it should be recognized that one attempting to devise an abrasion resistant garment material, such as for making motorcycle protection suits, would not be motivated to search mattress patents, nor does the teaching of the relied-upon reference provide any teachings relating to abrasion resistant materials for use in protective clothing.

Claims 1 and 4 are the independent claims within the above group of claims.

Claim 1. This is an independent claim drawn to *"An abrasion resistant material for use in protective clothing"*. The preamble itself clearly differentiates from the Shek reference, and breathes life into the claim. Nothing within the Shek reference is

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directed at reducing abrasion related injuries such as occur when a motorcycle rider falls from a moving vehicle into the pavement surface.

It is well known that for art to be relied upon it must be analogous art in the field of the Applicant's device (i.e., MPEP 2141.01(a)).

There is no discussion of, nor need for, any "abrasion resistance" within the mattress described by Shek. Certain qualities are being inferred into the teachings of Shek which do not comport with the instant application and for which no teachings is found within the Shek reference. There is nothing within the Shek reference directed to providing abrasion resistance.

The Shek reference, therefore, does not anticipate Claim 1 of the instant application.

In addition, Applicant has amended Claim 1 to recite these anti-abrasion aspects with even greater particularity. For example, the beads are described as comprising a low sliding friction, abrasion resistant material. The low sliding friction is contrasted in the specification with the high friction of materials such as metal and ceramic. One of ordinary skill in the art would readily appreciate that wood as described by Shek is also a high friction material. The cords are described as comprising flexible abrasion resistance material.

Furthermore, an interface between the beads and matrix is described having at least four attachment points which limit bead rotation while taking up slack. The benefits of this arrangement being described in detail.

It is very clear that Shek does not describe the use of abrasion resistant beads, nor an interface to the matrix of cords having at least four attachment points to limit rotation. Shek describes what can be conventional wooden beads, which are beaded on strings holding the beads into a matrix. The beads of Shek are threaded through a single hole by the strings which provide two contact points and allow the beads to freely rotate.

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It is well settled that for anticipation under 35 USC 102, the anticipating reference must show all the elements of the claim. As the apparatus of Shek does not describe a number of these aspects recited in Claim 1, it does not anticipate the claim. Therefore, Applicant respectfully requests the grounds for rejection be withdrawn from Claim 1 and the claims which depend therefrom.

Claim 4. Independent Claim 4 similarly recites the abrasion resistant materials of the beads and the cords, as well as the attachment of the beads on at least four attachment points within the matrix.

Accordingly, Claim 4 recites elements not described by the relied-upon reference, wherein the rejection of Claim 4 and the claims which depend therefrom should be withdrawn.

Claims 2, 5-6, 10-12 and 18-19. Although dependent Claims 2, 5-6, 10-12 and 18-19 should be considered *a fortiori* allowable in view of the non-anticipation of the respective base claims, these claims also provide additional distinctions over the reference, the following provided by way of example.

Claim 2 and 6 describes the beads being connected to the cords through the center, the amended claim reciting this with greater particularity, to prevent beads from moving along the cords. The beads of Shek are simply threaded on the strings.

Claim 3 describes the use of perhaps the most well known abrasion-resistant material, that of UHMW polyethylene, there is no such disclosure in Shek and no advantage to use of such a material for a mattress pad.

Claim 10 describes a conformal aspect of the invention, wherein sufficient elasticity is provided within the cords for the material to conform to the user. Shek does not describe any such elasticity for being securely retained while worn by the user.

Claim 12 describes the use of different sized beads, which is described with greater particularity for application about different areas about the exterior of the body of the wearer. Nothing of this nature exists within Shek which describes a substantially uniform matrix.

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2. Rejection of Claims 3, 7-8, 13-17 and 20 under 35 U.S.C. §103(a).

Claims 3, 7-8, 13-17 and 20 were rejected under 35 U.S.C. § 103(a), as being obvious over Shek in view of Ashtiani (U.S. Patent No. 6,849,016).

There are a number of problems with the above rejection.

First it should be recognized that the the instant application is a continuation in part of an application having a priority date of November 26, 1999. The material of these claims is described in that application, while the earliest priority date of the Ashtani reference is Oct. 5, 2001. Applicant clearly describes the UHMW in the preceding application, the low coefficient of friction and benefits, injection molded plastic beads, use of different material on exterior of beads, ratios of bead spacing, and so forth. Therein Ashtoni is not applicable to any aspects which were described in the original application by the Applicant.

Secondly, the relevance of the Ashtoni reference does not relate to material for abrasion resistant garments, and only describes some form of a beaded loop apparently used in automotive mechanisms for actuating doors and such. That a device in the art uses particular materials is not specifically relevant as the applicant is not inventing these materials, but using them in a structure and manner providing specific benefits not taught by the references.

Thirdly, it is unclear how a mechanical loop used in a car is to be combined with a mattress layer of a bed to arrive at an abrasion resistant material used in abrasion protection garments. The objects of these inventions differ, the principles of operation differ, and each of these differ still from the present invention. None of these references provide any teachings, suggestion, or motivation for the conformal beaded matrix for use in garments as described by the Applicant.

There are a number of additional problems as well, such as non-analogous art, applicant alone discovered the source of the problem, new principle of operation utilized, solved a different problem, new and unobvious results, lack of specificity of suggestion to modify, elements in references are not equivalent, references do not add

up to the invention, unworkable combination, useless combination, impossible to combine, proposed combination renders reference unsuited for intended purpose, no need of element within references, unsuggested combination, no motivation to combine, obvious to try, is not a standard of obviousness, and Applicant's invention must be considered as a whole.

Accordingly, the Ashtoni reference is not applicable against these claims, while even if it were it is not combinable with the Shek reference and does not result in the invention as described by the claims.

Therefore, Applicant respectfully requests that the rejection of these claims be withdrawn.

3. Amendment of Claims 1, 2, 4, 6, 10, 12 and 20.

Claim 1. Independent Claim 1 was amended to recite aspects of the beads and cords with greater particularity. Specifically, the use of abrasion resistant materials as that is described within the application, as well as the connection of the beads to the cords on at least four attachment points limiting bead rotation.

Support for these aspects is found in the original claims as well as in within both the drawings and the specification, including the following. Support for "flexible" is found in FIG. 4-6 and 19 and specification on page 10, lines 16-19: *"It can be seen that the abrasion resistant material is flexible as it must conform to the body of the wearer, and allow limited movement under sliding load as depicted in FIG. 6."* Support for "low sliding friction" is found in the specification and compared in the background specifically discussing that ceramics and metals provide a high-friction interface. For example, on page 9, lines 14-17: *"In addition the conventional construction of platelets have employed metals or ceramics, which although durable, create high levels of interface friction between the garment and the roadway surface. The high degree of friction causes high rotational torque on the sliding rider's body, thus increasing the extent of tumbling related injuries."*

The interconnection of the beads in the matrix are taught in the specification,

such as at page 7, line 22 through page 8, line 9: *"An important safety factor within the material occurs under abrasive friction, whereupon the beads rotate to tighten the attached matrix of cords to suspend the skin above the roadway surface between separated bead "pillars". The beads are configured with limited attachment points, preferably four to six, which retain them within the cord matrix while facilitating bead rotation. The beads have a substantially round surface in either one or two dimensions, and may rotate under urging such that side areas of the bead are exposed to the abrading surface. Preferably the beads are configured as either spheres, or oval cylinders. The beads are therefore provided with limited rotation, while they simultaneously take up the slack in the cord matrix to properly retain and suspend the fleshy portions of the wearers skin riding above the beads."*

Claims 2, 6 and 20. These claims were amended to recite how the beads are attached to the cords, specifically to prevent beads from moving along one or more of the cords. This aspect is found through the drawings (i.e., FIG. 1, 6-8, 10, etc.) and specification, including page 21, lines 17-19: *"In the prior embodiments the beads were molded onto the nodes of the cord matrix which prevented them from moving along one or more respective cord"*

Claim 4. Independent Claim 4 was amended to recite the abrasion resistance of the cord as recited in other claims, and an aspect of the attachment of the cords and beads. The interconnection of the beads in the matrix are taught in the specification, such as at page 7, line 22 through page 8, line 9: *"An important safety factor within the material occurs under abrasive friction, whereupon the beads rotate to tighten the attached matrix of cords to suspend the skin above the roadway surface between separated bead "pillars". The beads are configured with limited attachment points, preferably four to six, which retain them within the cord matrix while facilitating bead rotation. The beads have a substantially round surface in either one or two dimensions, and may rotate under urging such that side areas of the bead are exposed to the abrading surface. Preferably the beads are configured as either spheres, or oval*

cylinders. The beads are therefore provided with limited rotation, while they simultaneously take up the slack in the cord matrix to properly retain and suspend the fleshy portions of the wearers skin riding above the beads."

Claim 10. Dependent Claim 10 was amended to add additional clarification on the secure retention of the garment made of the material. Specifically, the conformal nature is described which is found throughout the title (i.e. CONFORMAL BEADED MATRIX) and specification, such as at page 7, lines 19-22: *"The conformal matrix is preferably constructed with integral elastic within the cords of the matrix which retain the beads near the skin surface, and which are capable of only limited stretch under frictional load."* Support is also found at page 15, lines 8-11: *"The cords 14 are preferably constructed to provide limited elasticity so that the garment will fit securely during high speed riding. Threads, or bands, of Kevlar™ or other high abrasion-resistant material, can be knitted to form a cord exhibiting limited elastic stretching."*

Claim 12. Dependent Claim 12 was amended to recite with greater particularity the onus for the different bead sizes, wherein they fulfill an aspect of the invention. In particular the size of the beads are determined according to the area of application on the exterior of the body. Support being found in the specification, including page 22, lines 9-10: *"according to the area of application about the exterior of the body"*.

4. Extension of Time Petition.

The Applicant has enclosed a petition for a two-month extension of time to respond to the Office Action and has enclosed the appropriate petition fee.

5. Amendments Made Without Prejudice or Estoppel.

Notwithstanding the amendments made and accompanying traversing remarks provided above, Applicants have made these amendments in order expedite allowance of the currently pending subject matter. However, Applicants do not acquiesce in the original ground for rejection with respect to the original form of these claims. These amendments have been made without any prejudice, waiver, or estoppel, and without forfeiture or dedication to the public, with respect to the original subject matter of the

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claims as originally filed or in their form immediately preceding these amendments. Applicants reserve the right to pursue the original scope of these claims in the future, such as through continuation practice for example.

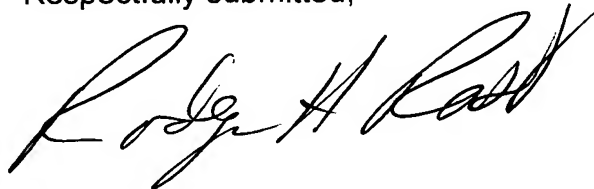
6. Conclusion.

Based on the foregoing, Applicant respectfully request that the various grounds for rejection in the Office Action be reconsidered and withdrawn with respect to the discussion and present form of the claims.

In the event any further matters remain at issue with respect to the present Application, Applicant respectfully request that the Examiner please contact the undersigned below at the telephone number indicated in order to discuss such matter prior to the next action on the merits of this Application.

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Respectfully submitted,



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